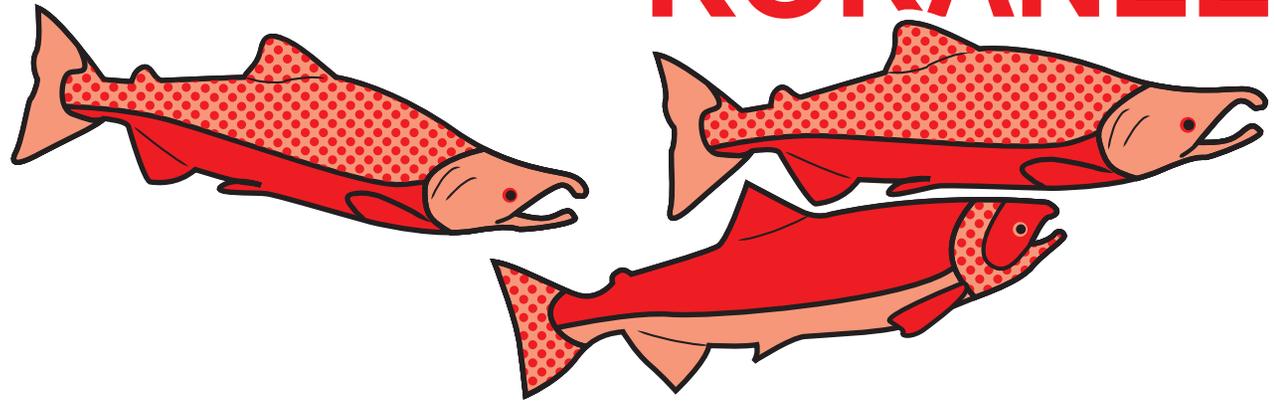


WHAT IS THE PROBLEM?

The kokanee population is verging on extinction. Their known spawning distribution has been reduced to only a few streams and shoreline areas. The estimated historic extent of spawning areas for native kokanee included several tributaries to Lake Washington, the Sammamish River and several of its tributaries, and Lake Sammamish and several of its tributaries. Native kokanee are now known to spawn only in Lewis Creek, Laughing Jacobs Creek, Ebright Creek and Pine Lake Creek, and along some shoreline areas in Lake Sammamish. This drastic reduction in the geographic distribution of spawning areas significantly raises the potential for a single localized event, of natural or human origin, to result directly in the complete eradication of native kokanee from this watershed.



LAKE SAMMAMISH KOKANEE

WHAT ARE KOKANEE SALMON?

Kokanee salmon (*Onchorhynchus nerka*) are native to the Lake Sammamish watershed and are a land-locked form of sockeye salmon. Kokanee have very similar identifying characteristics as sockeye, however, they are often much smaller, usually measuring 12 to 24 inches at maturity. Kokanee salmon live their entire life cycle in fresh water, unlike sockeye salmon, that migrate out to live in the ocean. When the population was abundant, one could see them spawning along portions of the lake shoreline and in streams that feed into the lake from about November through January.

KOKANEE HABITAT

Food: Insects are the primary source of food for fish in streams, and zooplankton in lakes. These insects may be produced from the stream or lake itself, or they may be provided from stream and lakeside vegetation.

Water Quality: Salmon and trout are susceptible to changes in water quality and are particularly sensitive to changes in water temperature and dissolved oxygen. The presence of contaminants or toxins, even if they may not be directly responsible for fish kills, can increase the likelihood of death from predators and disease and can destroy food sources (insects and invertebrates).

Cover: Stream and lakeside vegetation creates shade and helps regulate water temperature. The root systems of stream and lakeside vegetation protect against erosion, while large woody debris in the stream channel and lake shores provide protection from predators and floods.

Water Quantity: Clean, unsilted gravel beds are essential for salmon and trout spawning and egg survival. Flooding, excessive erosion, and sedimentation can destroy spawning beds and reduce water quality, while flows in urban streams can eliminate the pools and areas fish had to seek refuge.

Access: Kokanee are genetically programmed to return to their natal spawning streams to reproduce. Restrictions in access, in the form of improperly designed culverts or weirs, may prevent these fish from returning to those sites.

BE A STREAM AND LAKE STEWARD

Building, land clearing, day to day maintenance, and gardening practices, affect fish habitat. The face of the most serious pollution today is by people-we citizens who wouldn't dream of dumping toxins into a lake.

Avoid polluting: Don't use quick release "weed and feed" fertilizers, they leach into the soil and run into the water, poisoning everything on the way. If you need to fertilize, be sure it is organic and phosphate-free. Keep livestock, pets and their wastes, away from streams and lakes. Keep wet concrete, swimming pool waters or concentrations of bark mulch away from fish bearing waters- they are very toxic to fish.

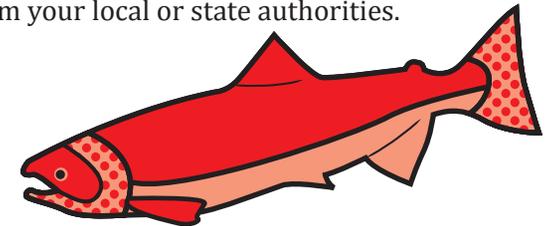
Conserve & restore natural vegetation along stream and lake banks. Stop mowing the grass areas adjacent to streams and lakes. Overhanging trees, shrubs and sedges provide shade, cover, food and prevent erosion. If you need to manage native vegetation, be selective in what you remove. Learn what vegetation is undesirable, remove it, and replace it with native shrubs and trees that provide habitat for wildlife.

Stop Erosion: Keep your land vegetated to minimize erosion. Add natural, disease resistance to existing monoculture lawns by overseeding your current lawn with clovers and other broad-leaf varieties. If a section of lawn doesn't grow well, redesign that part of your yard with native shrubs and woodland plants.

Manage stormwater runoff: High coverage of your land with buildings or pavement increases the rate of water running off your property (stormwater runoff). Build as small a footprint as possible and construct outdoor areas with pervious surfaces that allow water to drain through. Keep areas of natural or planted vegetation to allow rainfall to fall more slowly to the ground and to allow it to be evaporated or infiltrated into the ground. Construct a rain garden to help store and slowly dissipate stormwater.

NATIVE CONIFEROUS TREES CAN CAPTURE 30% OF WATER THAT FALLS ON THEM.

Educate family members and neighbors about stream values. Keep grass clippings and yard waste out of streams and lakes. Do not alter stream courses by vegetation removal, dams, or ponds without proper guidance and permits from your local or state authorities.



5 STEPS TO CLEANER WATERS

- 1** don't allow toxins to get into the water
- 2** keep your land vegetated and avoid clearing
- 3** let water be absorbed; make a rain garden
- 4** conserve & restore native vegetation
- 5** educate others about protecting lakes & streams